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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,627	11/05/2003	Tae-Kwon Yoo	Q76246	4877

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EXAMINER

SAID, MANSOUR M

ART UNIT PAPER NUMBER

2629

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/700,627	<b>Applicant(s)</b> YOO, TAE-KWON	
	<b>Examiner</b> MANSOUR M. SAID	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

**1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:**

**A person shall be entitled to a patent unless –**

**(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

**2. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hwang (6,337,682 B1).**

**As to claim 1,** Hwang teaches an apparatus for adjusting a sampling phase of a digital display, comprising (column 2, line 53 through column 3, line 23): a phase locked loop (PLL) circuit unit (figure 1, (40) for converting a frequency of a sampling clock signal and outputting a converted frequency, the sampling clock signal for converting an analog video signal into digital format (figures 1-3, column 3, lines 1-22, and column 5, lines 67); an analog to digital converter (ADC) (figure 1, (20)) for converting an incoming analog video signal into digital format using the sampling clock signal input from the PLL circuit unit to output a converted video signal (figures 1-3 and column 5, lines 15-67); a detection unit (figure 1, (70)) for detecting in a predetermined region a maximum phase shift of the converted video signal (figures 1-3, column 5, lines 40-67 and column 6, lines 1-51); and a control unit (figure 1, (60)) for controlling the PLL circuit unit so that the sampling phase can be adjusted in accordance with the maximum phase shift detected by the detection unit (figures 1-3, column 2, line 65 through column 3, line 15 and column 5, lines 28-67) .

**As to claim 2**, Hwang teaches wherein the detection unit detects a number of phase shifts exceeding a predetermined reference level within the predetermined region, and when determining the number of phase shifts to be equal to, or greater than a predetermined value, detecting the maximum phase shift in the predetermined region (figures 1-3, column 5, lines 40-67 and column 6, lines 1-51).

**As to claim 3**, Hwang teaches wherein the detection unit comprises: a comparator (figure 1, (65)) that detects whether the converted video signal is varied to (figures 1-3, column 4, lines 19-37, column 5, lines 40-67 and column 6, lines 1-60), or above a predetermined reference level based on the comparison between the converted video signal from the ADC and the reference level (figures 1-3, column 2, lines 55-67, column 3, lines 1-22, column 4, lines 19-37, column 5, lines 40-67 and column 6, lines 1-60); a counter that detects the maximum phase shift by counting an output signal from the comparator; and a reference setting unit that inputs the predetermined reference level to the comparator for the comparison with the converted video signal (figures 1-3, column 2, lines 55-67, column 3, lines 1-22, column 4, lines 19-37, column 5, lines 40-67 and column 6, lines 1-60).

**As to claim 4**, Hwang teaches wherein the control unit, determining based on a signal output from the detection unit that the number of phase shifts exceeding the predetermined reference level is below the predetermined value, controls the detection unit to detect the maximum phase shift in another detection region (figures 1-3, column 2, lines 55-67, column 3, lines 1-22, column 4, lines 19-37, column 5, lines 40-67 and column 6, lines 1-60).

**As to claim 5**, Hwang teaches wherein the detection unit adjusts the sampling phase by computing one of 50% and 75% phases of entire checking region with respect to the maximum

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phase shift in accordance with a characteristic of the converted video signal (figures 1-3, column 2, lines 55-67, column 3, lines 1-22, column 4, lines 19-37, column 5, lines 40-67 and column 6, lines 1-60).

**As to claim 6**, Hwang teaches a method for adjusting a sampling phase of a digital display, comprising the steps of (column 2, line 53 through column 3, line 23): a) converting an incoming video signal in a predetermined region into a digital format to output a converted video signal, and analyzing the converted signal (figures 1-3, column 3, lines 1-22, and column 5, lines 67); b) determining whether a phase shift in the converted video signal analyzed in step a) varies at or above a predetermined level, and occurs more frequently than a predetermined value (figures 1-3, column 3, lines 1-22, and column 5, lines 67); c) if the phase shift is determined to have occurred more frequently than the predetermined value, detecting a maximum phase shift of the predetermined region (figures 1-3, column 2, line 65 through column 3, line 15 and column 5, lines 28-67); and d) adjusting the sampling phase in accordance with the maximum phase shift detected in step (c) (figures 1-3, column 2, line 65 through column 3, line 15 and column 5, lines 28-67) .

**As to claim 7**, Hwang teaches wherein, if the phase shift exceeding the predetermined reference level is determined to have occurred less frequently than the predetermined value, changing a phase shift detection region, and returning to the step a) (figures 1-3, column 3, lines 1-22, and column 5, lines 67).

**As to claim 8**, Hwang teaches wherein, after completion of the automatic sampling clock within the predetermined region, the step c) detects a maximum phase shift of the input signal while moving phase of pixel (figures 1-3, column 2, line 65 through column 3, line 15 and

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column 5, lines 28-67).

As to **claim 9**, Hwang teaches wherein the step d) adjusts the sampling phase by computing one of 50% and 75% phases of entire checking region with respect to the maximum phase shift in accordance with a characteristic of the converted video signal (figures 1-3, column 2, lines 55-67, column 3, lines 1-22, column 4, lines 19-37, column 5, lines 40-67 and column 6, lines 1-60).

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lin et al. (6,326,961 B1) teaches an automatic detection for tuning the frequency and phase of displaying clock of PC's display to match the frequency and phase pixel clock.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mansour M. Said whose telephone number is 571-272-7679. The examiner can normally be reached on Monday through Thursday from 8:30-6:00 P.M. The examiner can also be reached on alternate Friday from 8:30 a.m. to 5:00 p.m. EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala whose telephone number is 571-272-7681.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: 571-273-8300 (for Technology Center 2600 only)

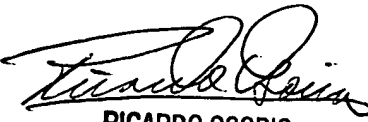
Hand-delivered responses should be brought to the Customer Service Window at the Randolph Building, 401, Dulany Street, Alexandria, VA 22314.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mansour M. Said

5/12/06



**RICARDO OSORIO**  
**PRIMARY EXAMINER**